

The CEGB cohort - the first 30 years - and next?

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Employed CEGB and National Grid 1987 – 1993

Content

- Founding the study – Dr Bonnell
- Analysis so far
- The future?

Key principles and test of time

Brit. J. industr. Med., 1955, 12, 181.

EMPHYSEMA AND PROTEINURIA IN MEN CASTING COPPER-CADMIUM ALLOYS

BY

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(RECEIVED FOR PUBLICATION DECEMBER 7, 1954)

Diseases of occupational origin occur as acute or chronic illnesses. The former are usually dramatic and the connexion between symptoms and occupation is obvious. An insidious illness developing over many years and due to long exposure to small quantities of a poisonous substance may long go unrecognized as being of occupational origin.

was found to have chronic interstitial nephritis and hypertrophy of the heart muscle. The liver was found to contain 0.91 grain of cadmium per pound weight and 0.77 grain of zinc per pound, despite the fact that calamine the zinc ore contained only 0.5 to 1.5% of cadmium and 35 to 40% of zinc. Stephens suggested that the symptoms were due to cadmium

Dr John Bonnell 1924 -1999

- His role at the CEGB was difficult, largely because the regional electricity boards' medical services were fiercely independent, variable in quality, and reluctant to accept guidance from London. Nevertheless, he achieved a high standard of occupational health throughout the industry and became an international expert on the health hazards of atomic energy. In collaboration with the Atomic Energy Authority and the National Radiological Protection Board he established standards for medical supervision of workers exposed to radiation, which are still observed in the United Kingdom and in other countries.

(from Obituary in British medical Journal)

Medicine and the Media

IS OUR HEALTH affected by the electromagnetic field associated with power supply lines and household electrical appliances? This question was asked in *Panorama* last month (BBC1, 22 March), and the most interesting aspect of the programme was not what was said, or how it was said, but the reactions of people to it. The following day *Open Air* (BBC1) invited questions and comments by phone for reporter Tom Mangold and Dr Michel Coleman of the International Agency for Research on Cancer. They must have been disappointed by the reactions.

CEGB National Epidemiology File

- Anyone employed for at least six months during the period in which payroll in their Region became computer based – up to December 1983
- Total 82,000
- Link to National Death Certificate Data
- (Recent studies) link to cancer Registry data
- 31,800 deaths by 2012

Studies Published Peer Review Journals

- Harrington JM, McBride DI, Sorahan T, *et al.* **Occupational exposure to magnetic fields in relation to mortality from brain cancer among electricity generation and transmission workers.** *Occup Environ Med* 1997;**54**:7–13.
- Harrington JM, Nichols L, Sorahan T, van Tongeren M. **Leukaemia mortality in relation to magnetic field exposure: findings from a study of United Kingdom electricity generation and transmission workers, 1973-97.** *Occup Environ Med* 2001;**58**:307-314.
- Sorahan T, Nichols L, van Tongeren M, Harrington JM. **Occupational exposure to magnetic fields relative to mortality from brain tumours: updated and revised findings from a study of United Kingdom electricity generation and transmission workers, 1973-97.** *Occup Environ Med* 2001;**58**:626-630.
- Sorahan T, Nichols L. **Mortality from cardiovascular disease in relation to magnetic field exposure: findings from a study of UK electricity generation and transmission workers, 1973-1997.** *Am J Ind Med* 2004;**45**:93-102.
- Cardiovascular
- Nichols L, Sorahan T. **Mortality of UK electricity generation and transmission workers, 1973-2002** *Occup Med* 2005;**55**:541-548.
- Sorahan T, Kheifets L. **Mortality from Alzheimer's, motor neurone and Parkinson's disease in relation to magnetic field exposure: findings from the study of UK electricity generation and transmission workers, 1973-2004.** *Occup Environ Med* 2007;**64**:820-826.
- Sorahan T. **Cancer incidence in UK electricity generation and transmission workers, 1973-2008.** *Occup Med* 2012;**62**:496-505.
- In preparation - **Cancer Registry studies on Brain Cancer and Leukemia**

What are the key qualities?

- Data has been intensively cleaned - duplicate entries job tasks clarified
- Large number in cohort – large numbers of deaths and cancer registration – statistical power
- Quality job information
- Job exposure matrix for EMF– ability to consider dose response gradient

Key findings

- Healthy worker effect – All cause SMR 83
- Asbestos related disease increased
 - Mesothelioma
 - Lung cancer less raised than predicted by mesothelioma rate – why?
- No association between cause of death and EMF
- No association between EMF and leukaemia , brain cancer or Alzheimer's

Consent – keeping it current

- Group consent for study with TUs in 1970s
- Data Protection Act - Permissions updated 2009
- Consent (now) is
 - specific to researcher (Prof Sorahan)
 - Dependent on active study
- Any new study post DPA—individual data subject consent

Future concerns – daily headline?

Times 27/11/12₁₅

News

Scientists link autism with road pollution

Tom Whipple Science Correspondent

Early exposure to traffic pollution could be linked to the risk of developing autism, a study has claimed.

Children living near busy roads during the first year of their life or while in the womb were three times more likely to have the disorder compared with those in unpolluted areas, scientists from the University of Southern California said. Even for moderately busy roads the risk was doubled.

The study, published in the journal *Archives of General Psychiatry*, looked

Where next?

- Unique data set
- Employment records - now 20 years since CEGB
- Up date Mortality Analysis at 10 years
- Custody of data
 - ‘active’ and in accordance with DPA
 - A responsibility?
- Dr Bonnell - foresight, persuasion, science

Questions

